

** TX STATUS REPORT **

AS OF AUG 09 '95 1:02 PAGE 01



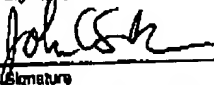
HEWLETT PACKARD

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 02 08/09 09:01 1 553 3888 EC--S 00'29" 001 067 OK

INVENTION DISCLOSURE		PAGE ONE OF 25	
PONO	DATE RCVD	ATTORNEY TXL/ISA	
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<p>Descriptive Title of Invention: Internet Printing Model for Handheld Devices</p>			
<p>Name of Project: ESQUIRE</p>			
<p>Product Name or Number:</p>			
<p>Was a description of the invention published, or are you planning to publish? If so, the date(s) and publication(s): NO</p>			
<p>Was a product including the invention announced, offered for sale, sold, or is such activity proposed? If so, the date(s) and location(s): NO</p>			
<p>Was the invention disclosed to anyone outside of HP, or will such disclosure occur? If so, the date(s) and name(s): NO</p>			
<p>If any of the above situations will occur within 3 months, call your HP attorney or the Legal Department now at 1-855-3001 or 408-853-8061.</p>			
<p>Was the invention described in a lab book or other record? If so, please identify (lab book #, etc.): NO</p>			
<p>Was the invention built or tested? If so, the date: Yes a prototype was developed to show the concept. This prototype was built on June 7th 1999</p>			
<p>Was this invention made under a government contract? If so, the agency and contract number: NO</p>			
<p>Description of Invention: Please preserve all records of the invention and attach additional pages for the following. Each additional page should be signed and dated by the inventor(s) and witness(es).</p>			
<p>A. Prior solutions and their disadvantages (if available, attach copies of product literature, technical articles, patents, etc.).</p>			
<p>B. Problems solved by the invention.</p>			
<p>C. Advantages of the invention over what has been done before.</p>			
<p>D. Description of the construction and operation of the invention (include appropriate schematic, block, & timing diagrams; drawings; samples; graphics; flowcharts; computer listings; test results; etc.).</p>			
<p>Signature of Inventor(s): Pursuant to my (our) employment agreement, I (we) submit this disclosure on this date: 7/28/99</p>			
Employee No.	Name	Signature	Entity & Lab Name
154155	Jeff Morgan		HP/L/ISA
Employee No.	Name	Signature	Entity & Lab Name
148158	Bill Serra		HP/L/ISA
Employee No.	Name	Signature	Entity & Lab Name
Employee No.	Name	Signature	Entity & Lab Name

Form 3.1 (F.D.O.O. Rev. 11/02/98)

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H	INVENTION DISCLOSURE	PAGE ONE OF <u>25</u>	DATE RCVD <u>8-9-99</u>	ATTORNEY <u>TXL/ISAL</u>	
	PDNO <u>10992213</u>				
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<p>Descriptive Title of Invention: Internet Printing Model for Handheld Devices</p>					
<p>Name of Project: ESQUIRT</p>					
<p>Product Name or Number:</p>					
<p>Was a description of the invention published, or are you planning to publish? If so, the date(s) and publication(s): <u>NO</u></p>					
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<p>Was the invention disclosed to anyone outside of HP, or will such disclosure occur? If so, the date(s) and name(s): <u>NO</u></p>					
<p><i>If any of the above situations will occur within 9 months, call your IP attorney or the Legal Department now at 1-553-3061 or 408-553-3061.</i></p>					
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<p>Signature of Inventor(s): Pursuant to my (our) employment agreement, I (we) submit this disclosure on this date: <u>7/26/99</u></p>					
Employee No.	Name	Signature	Telnet	Mailstop	Entry & Lab Name
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547714	John C Schettino Jr.		236-2549	1U17	HPL/ISAL
Employee No.	Name	Signature	Telnet	Mailstop	Entry & Lab Name
(If more than four inventors, include additional information on another copy of this form and attach to this document)					

ESQUIRT**Invention Disclosure Notes:****A. Prior solutions and their disadvantages**

Today there is limited support for printing from handheld devices such as Palm PC's. There are currently no known support from printing information from cellular, phones and pagers. All of the solutions that exist today print or display information based on the capabilities of the devices itself. For example if your device is greyscale then the display and printed information will be in greyscale. The Esquirt solution allows the output device to determine the quality of the information rendered. The handheld device provides the link to the information only and not it's own rendered information model.

B. Problems solved by the invention

There are a couple of problems that can be solved by this invention both of which rely on the use of the WWW to publish rich colorful information.

The first problem supports the mobile user but does not require that the handheld device is attached to a network. In this case the user can store on the device the URLs for information or services commonly accessed on the Internet. These URLs may refer to information services providing news and/or stock market information. The URLs may refer to corporate information such brochures, presentations, contracts etc. When the user wanted to access this information referred to by these URLs he/she would be able to use esquirt to render the information on a printer or a display device (e.g. a PC). The esquirt service would take care of accessing the information based on the URL and rendering it on the output device. This would provide the user with constant access to rich information (possibly time varying) without the need of a sophisticated mobile device (e.g laptop PC) or the constant attachment to a network.

The second problem solved by this invention supports devices with network connectivity. There are currently a number of efforts underway to provide web browsing capabilities to handheld devices. In many case this requires that the original web content be adjusted to conform to the limited display capabilities of the device. In general the content adjustment is traditionally just a summarization of the content that exists on the internet. The esquirt system would allows network enabled devices to browse the internet but if the user wanted to print the information or view more detail he/she would be able to do so using the full capabilities of the output or rendering device. In this case the summarized information would be sent to the device along with the URL to the real content on the network. This URL would be used by esquirt to access the web content and render the information. This notion provides for the notion of data paging services where a device such as a pager is sent a simple text message with a URL to the real information. The user of the pager sees the text message and is able to view the information as printed output or on a viewer.



C. Advantages of the invention over what has been done before

Existing solutions have required the following to achieve the above.

1. A very sophisticated client device, something like a laptop.
2. A network connection to access web based information
3. A print driver for a local printer or access to network printer.

D. Description of the construction and operation of the invention

See Attached documents:

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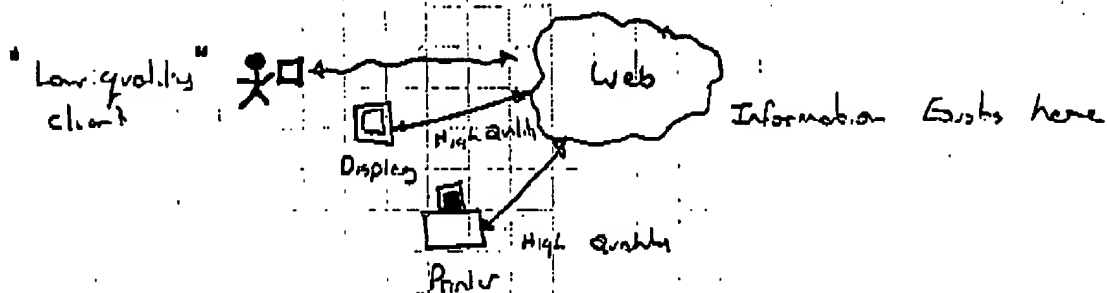
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Big Issue is the Client?

Print model for Handheld devices

Palm
Toshiba
Phone
Calculator



Print from user is required
Which Printer?

My Printer

Printer with a cable (eg. Neosab)

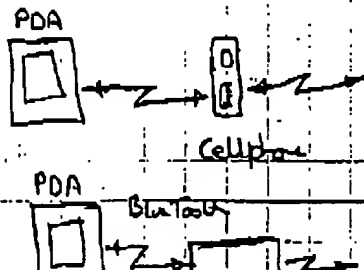
Synchronization model for handheld devices

End of August is a timeframe

Jornia connected to Blue Tooth

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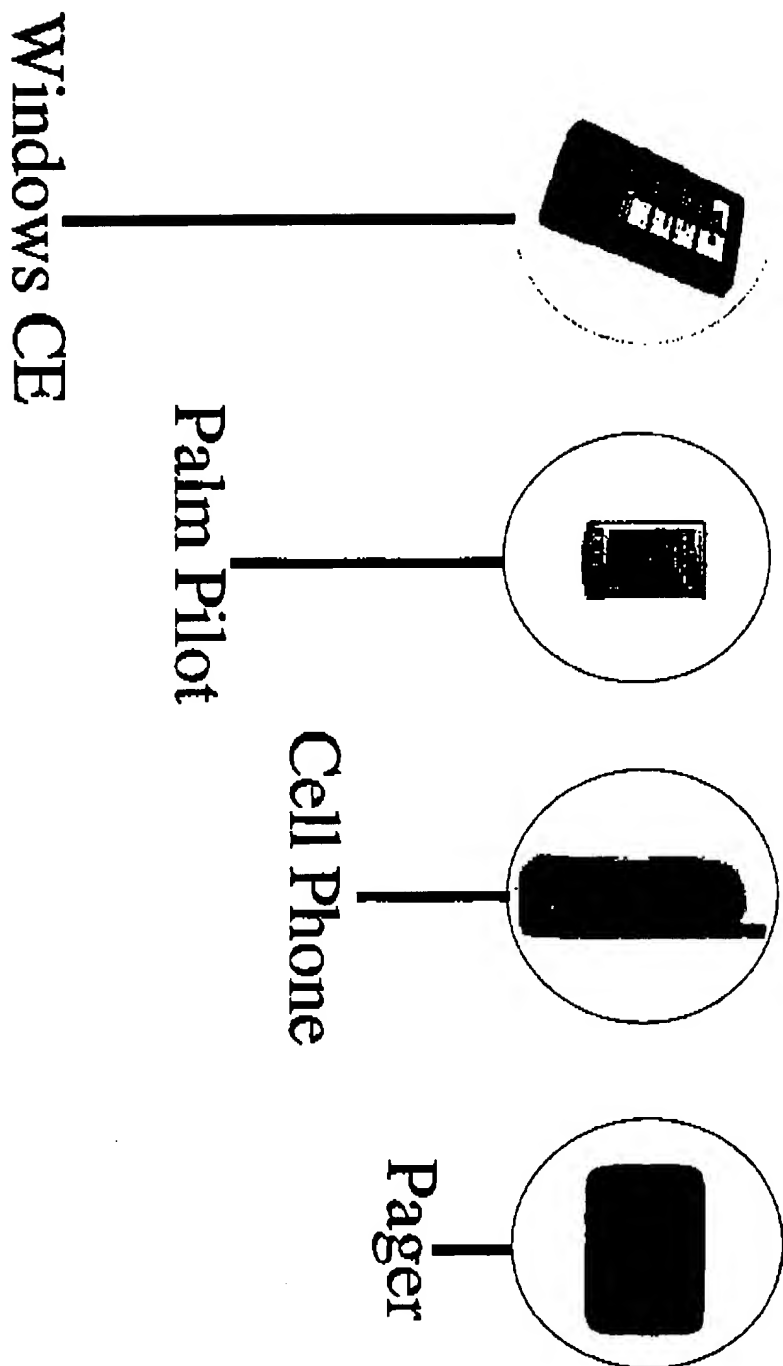
Don't want to make the phone the access path to Appliances

Internet based Printing Model for Handheld/Wearable devices

Project Concept

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Handheld Devices





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Device Characteristics

- Small Screen or no Screen
- Low resolution Color or Black and White
- Limited local resources
- Low power
- Limited connectivity
- Limited UI capabilities

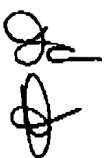



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Internet Access

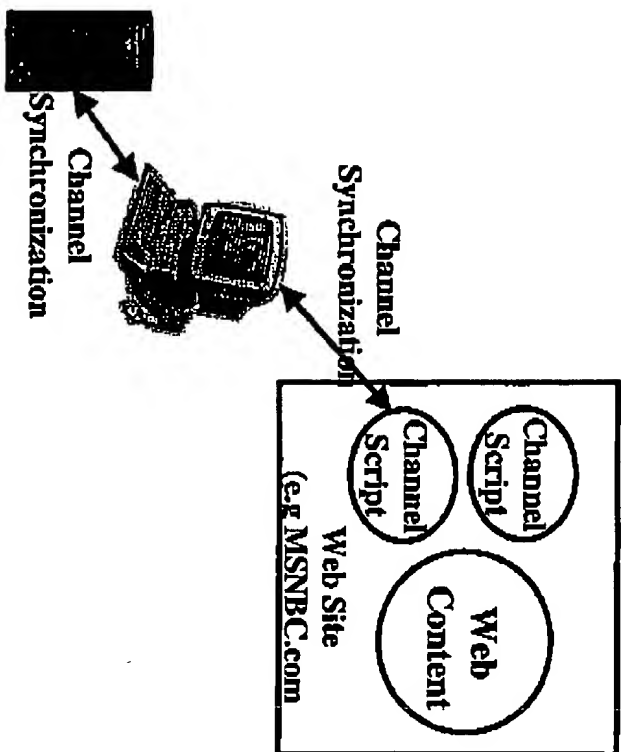
- Great demand to access Internet Data
- WEB, Email, Calendar, events etc.
- Emerging solutions leveraging existing cellular phone infrastructure.
- Small number of wireless ISPs exist
- In most cases content adaptation is required to support the devices capabilities and access constraints.



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Win-CE Access



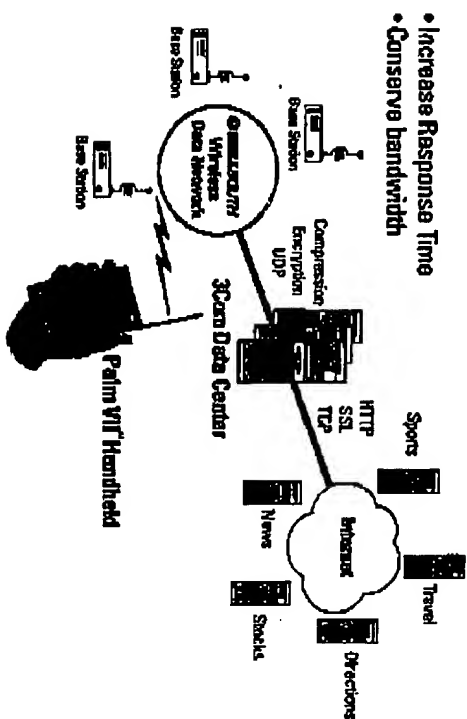
- Based on Channel Description Files (CDF).
- Synchronized web sites with content adaptation
- Offline browsing
- Server side scripts modify content to support device capabilities

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Palm Pilot Access

Web Clipping Proxy Server

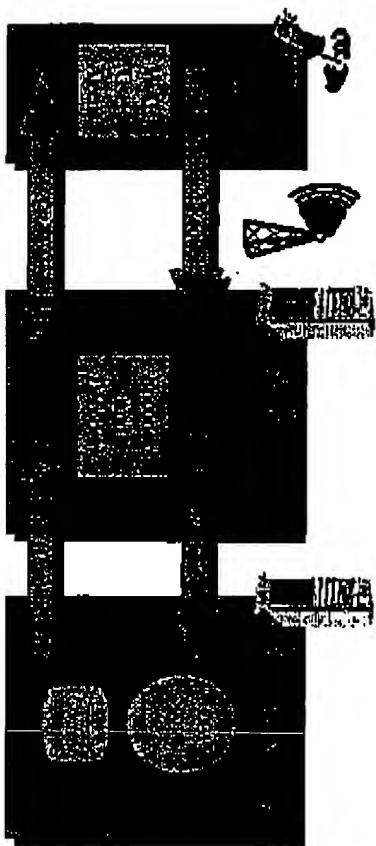


- Palm.net ISP services
- Based on a notion called “Web Clipping”
- Web Clipping applications support access to major services
- General content is manipulated via ISP

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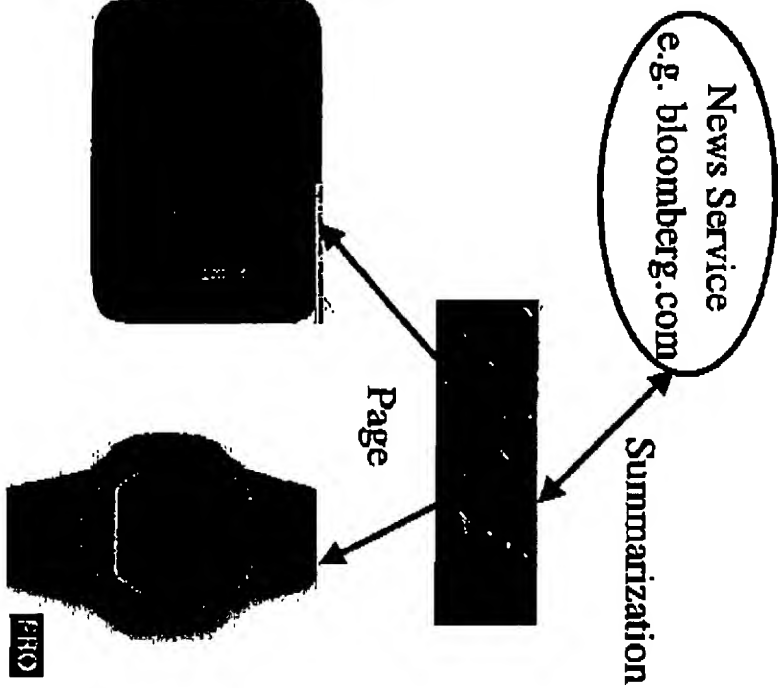
Cell Phone Access



- WAP consortium developing complete architecture to support cell phone access to internet data
- WAP gateways perform manipulation of content.
- Specialized services exist for WAP devices

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Pager Access

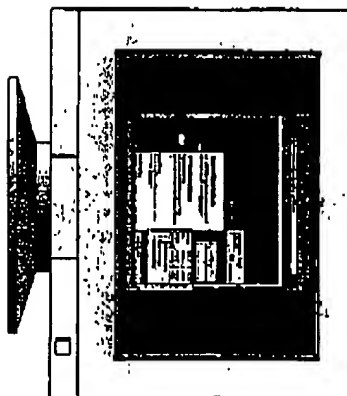


- No browser model support.
- Event based access to information
- Textual pages can summarize events backed by information on the web.

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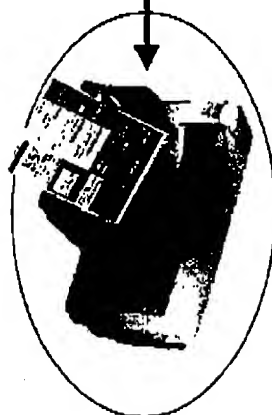
Traditional Print Model



Local/Network Printer

What you see is what you get

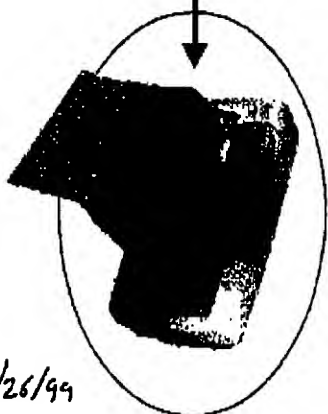
print ok



IR Squirt Protocol
(e.g. JetSend)

What you see is ALL you get

in work



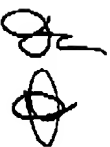
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What you see is ALL you get!

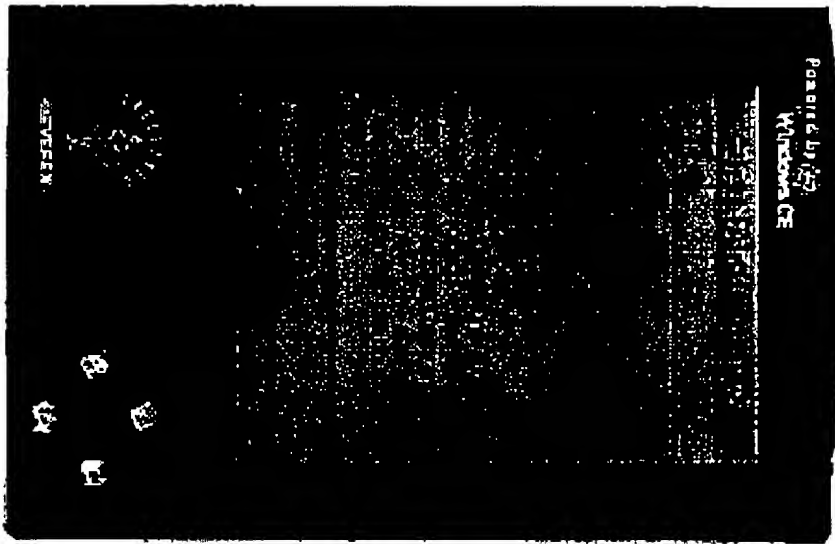
- Existing print and view model for handheld devices is based on the capabilities of the device.
- Information displayed on the device is a limited representation of rich information stored in the Internet.
- Printers have the capability to render rich information but can't access it in current print model



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Win-CE Access Example



[http://www.dinkboy.com/Products.aspx?PID=2000000001](#)

Dink Boy Old Fashioned



This drink was first created getting the best of the century at the Palomares Club in Lufkin, Texas.

Hardly, when one of the regular customers, a retired food writer, passed, didn't come with his taste of all night when he was in the last of his life (he was in the last of his life) to accommodate him, his brother and his wife.

You can always find a Dink Boy Old Fashioned at the Palomares Club in Lufkin, Texas.

The Dink Boy Old Fashioned is a drink that is made with a combination of the best of the century at the Palomares Club in Lufkin, Texas.

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Internet Print Model

- Let the Printer access the information from the network and then render it on paper.
- Device needs to pass the printer a link that can be used to access the information.
- Exploit the web by using URL's as a naming mechanism
- Could be built into printer or provided as a network service.



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Issues

- How did the URL get to the client
- local communications with printer
- Rendering of information on the printer
- Security

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URL's how to get em

- Bookmarks maintained on the client device
- Sent to the device while browsing the network (requires internet access on the device, e.g. CDPD, WAP etc)
- Sent to the device as part of a page. Requires pager network access
- Sent or scanned from another device or beacon.

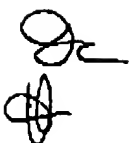
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Local Communications

- Most PDA class devices have support for IR.
- Many popular phones and two-way pagers also support IR.
- Bluetooth hardware starting to emerge will be integrated into new cell phones.
- Only simple protocol support required to send a few bytes of information

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Rendering Information

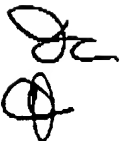
- Could use the PC rendering path connected to local or networked printer
- Could set up a PC rendering path to a printer as a service (e.g Printer portal)
- Implement a generic HTML/XML print driver which can be embedded on the printer or via JetDirect type device (Print from URL).

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Security

- Open Information: Information that does not require protection. News feeds, Stock, Sports. Simple password protection can be embedded in the URL.
- Authorized Information: Requires the presentation of a user ID. May be able to exploit cellular ID, or smart card. May require a password to be entered.
- Confidential Information: Requires support to protect the transport of information. Will require additional infrastructure support.

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Applications or E-Services


- Printer Kiosks, support handheld device users.
- Can be placed in public areas for general use (e.g hotels, airports etc).
- Billing infrastructure required to secure payment. Verifone POS business opportunity

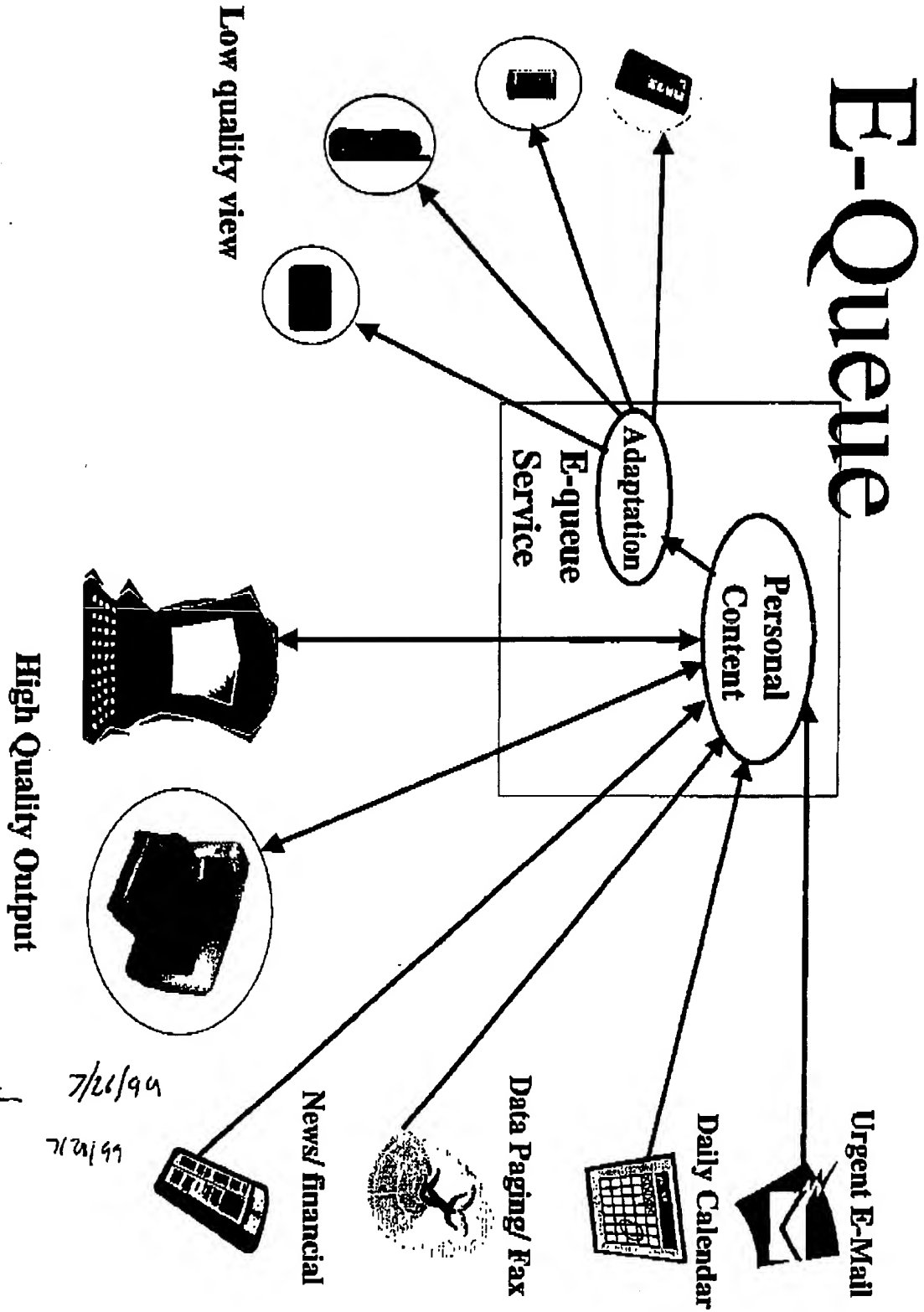
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E-queue

- Personal information queue.
- Information placed on the queue from applications (e.g email, fax etc)
- Other (authorized) users can leave information on the queue.
- Scheduled information can be placed on the queue.
- Print-out or view where ever you are
- Notification can be supported via pager or weblink

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